

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) A vascular closure device, comprising:
a first needle and a second needle both of which are configured to move between a retracted position and an extended position;
a suture configured to move with the first needle from the retracted position to the extended position;
a snare configured to move with the second needle from the retracted position to the extended position, the snare comprising a loop portion configured to grasp the suture after the first and second needles are in the extended position and the first needle and suture extend within the loop portion of the snare; and
a pre-tied knot disposed on a proximal end of the suture such that a distal end of the suture and the second needle can be directed through the pre-tied knot to approximate tissue surrounding a vascular opening.
2. (Previously Presented) A vascular closure device according to claim 1 wherein the snare comprises a wire loop having a memory that causes the wire loop to open in a repeatable orientation.

3. (Previously Presented) A vascular closure device according to claim 1 wherein the first needle and the second needle each extend outward and away from a body of the vascular closure device at an angle of 3° to 20°.

4. (Previously Presented) A vascular closure device according to claim 1, further comprising a handle set to allow an operator to control movement of the snare and the suture, and wherein the pre-tied knot on the proximal end of the suture is releasably attached to the handle set.

5. (Previously Presented) A vascular closure device according to claim 1 wherein when the first needle and the second needle are both in the extended position, the snare is configured to grasp the suture so that the suture can move with the snare and the second needle as the second needle moves back to the retracted position.

6. (Previously Presented) A vascular closure device according to claim 1 wherein the pre-tied knot is configured to form a slidable knot that is capable of cinching down when the distal end of the suture is threaded through the pre-tied knot.

7. (Currently Amended) A vascular closure device, comprising:

an anchor configured to extend through an opening in a blood vessel, the anchor being configured to move between a contracted configuration where the anchor is sized to fit through the opening in the blood vessel and an expanded configuration where the anchor is too large to fit through the opening in the blood vessel;

a snare configured to be inserted through a wall of the blood vessel at a location that is adjacent to the opening in the blood vessel, the snare comprising a loop portion;

a suture and a needle combination configured to be inserted through the wall of the blood vessel at another location that is adjacent to the opening, the loop portion of the snare also being configured to receive the suture and needle combination after the snare and the suture and needle combination are inserted through the wall of the blood vessel and to grasp the suture in the blood vessel and retract the suture through the wall of the blood vessel;

wherein the vascular closure device is configured to close the opening in the blood vessel.

8. (Original) A vascular closure device according to claim 7 wherein the snare comprises a wire loop having a memory that causes the wire loop to open in a repeatable orientation.

9. (Previously Presented) A vascular closure device according to claim 7 wherein the snare and the suture and needle combination each move between a retracted position and an extended position to allow the snare and the suture to be inserted through the wall of the blood vessel.

10. (Previously Presented) A vascular closure suturing device according to claim 7 further comprising a handle set to allow an operator to control movement of the snare and the suture.

11. (Previously Presented) A vascular closure device according to claim 7, further comprising a pre-tied knot positioned to receive the suture after the suture is retracted through the wall of the blood vessel by the snare.

12. (Previously Presented) A vascular closure device according to claim 7 comprising a first needle and a second needle, the first needle being configured to insert the suture through the wall of the blood vessel and the second needle being configured to insert the snare through the wall of the blood vessel.

13. (Currently Amended) A method of closing a vascular opening utilizing a vascular closure device comprising:

inserting a sheath into a vessel through a vessel opening;

inserting a snare into the vessel on a first side of the vessel opening, the snare comprising a loop portion;

inserting a needle with a suture into the vessel on a second side of the vessel opening;

positioning the needle with the suture inside the loop portion of the snare after inserting the snare and the needle with suture into the vessel;

grasping the suture with the loop portion of the snare;

pulling the suture across the vessel opening and through the vessel on the first side of the vessel opening;

directing the distal end of the suture through a pre-tied knot formed at a proximal end of the suture to create a knot to approximate tissue surrounding the vessel opening.

14. (Original) The method of claim 13, further comprising cinching the knot to approximate tissue surrounding the vessel opening.

15. (Original) The method of claim 13, further comprising anchoring the sheath inside the vessel with a pair of extendable feet.

16. (Original) The method of claim 13, further comprising extending a safety wire into the vessel opening such that the safety wire can be used to facilitate reinserting the sheath if the snare fails to grasp the suture.

17. (Original) The method of claim 13, further comprising disengaging the sheath from the vessel and withdrawing the sheath from the vessel opening such that the suture remains extended across the vessel opening.

18. (Original) The method of claim 13, further comprising tightening the suture such that the suture approximates tissue surrounding the vessel opening.

19-20. (Canceled)

21. (Currently Amended) A vascular closure device, comprising:

a needle positioned at a distal end of the vascular closure device, the needle being configured to move between a retracted position and an extended position;

a suture having a free end configured to move with the needle from the retracted position to the extended position, wherein a portion of the suture extends lengthwise from a tip of the needle toward a proximal end of the vascular closure device, the portion of the suture being positioned outside of the needle; and

a pre-tied knot positioned at a proximal end of the vascular closure device;

a snare comprising a loop portion;

wherein the vascular closure device is configured to pass the loop portion of the snare through a wall of the blood vessel at a first location on the wall spaced laterally of a tissue puncture, pass the suture and the needle through [[a]] the wall of [[a]] the blood vessel at a second location on the wall spaced laterally of the tissue puncture, and then pass the suture and needle into the loop portion, the loop portion of the snare being configured to grasp the suture at a location spaced from the free end and retract the suture through the wall of the blood vessel and on through the pre-tied knot to approximate tissue surrounding an opening in the blood vessel.

22. (Previously Presented) The vascular closure device according to claim 21 wherein the pre-tied knot is provided on a sleeve that is configured to move from the proximal end of the vascular closure device to the distal end of the vascular closure device.

23. (Canceled)

24. (Currently Amended) A method of closing an opening in a blood vessel with a vascular closure device, comprising:

inserting a needle and a suture together through a wall of the blood vessel at a location that is adjacent to the opening;

inserting a snare through the wall of the blood vessel at another location that is adjacent to the opening, the snare comprising a loop portion;

positioning the needle and the suture within the loop portion of the snare after the needle and suture and the snare are inserted through the wall of the blood vessel;

grasping the suture with the loop portion of the snare after removing the needle from within the loop portion; ~~and~~

withdrawing the suture through the wall of the blood vessel; and

tightening the suture to close the opening in the blood vessel.

25. (Previously Presented) The method of claim 24 wherein tightening the suture includes passing the suture through a pre-tied knot and tightening the knot.

26. (Previously Presented) The method of claim 24 wherein inserting the suture through the wall includes inserting a needle coupled to the suture through the wall.

27. (Previously Presented) The method of claim 24 wherein inserting the snare through the wall includes inserting a needle that includes the snare through the wall.

28. (Previously Presented) The method of claim 24 comprising extending a safety wire through the opening.

29. (Previously Presented) The method of claim 24 comprising securing the vascular closure device in the blood vessel.

30. (Currently Amended) A vascular closure device, comprising:

- a first needle and a second needle both of which are configured to move between a retracted position and an extended position;
- a suture configured to move with the first needle from the retracted position to the extended position;
- a snare configured to move with the second needle from the retracted position to the extended position, the snare including a wire loop having a memory that causes the wire loop to open in a repeatable orientation; and
- a pre-tied knot disposed on a proximal end of the suture such that a distal end of the suture can be directed through the pre-tied knot to approximate tissue surrounding a vascular opening;

the suture and first needle being positionable inside the wire loop of the snare after the first and second needles move to the extended position;

wherein the wire loop grasps the suture after the first needle is removed from inside the wire loop.

31. (Currently Amended) A method of closing a vascular opening utilizing a vascular closure device comprising:

inserting a sheath into a vessel through a vessel opening;

inserting a snare into the vessel at a first location laterally adjacent to the vessel opening, the snare including a wire loop;

inserting a suture with a needle into the vessel at a second location laterally adjacent to the vessel opening; and

inserting the suture with the needle into the wire loop;

extending the wire loop across the vessel opening to grasp the suture;

pulling the suture across the vessel opening and through the vessel on the first side of the vessel opening;

directing the distal end of the suture through a pre-tied knot formed at a proximal end of the suture to create a knot to approximate tissue surrounding the vessel opening.